# FV3-GEFS/Sub-seasonal

## - Reforecast update

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And ensemble staffs

Environmental Modeling Center
NCEP/NWS/NOAA

Status Update: February 14 2019

# Major Milestones

- **Q2FY18 -** Prepare FV3-GFS for reanalysis project: Develop and test low-resolution version of FV3-GFS and FV3-GDAS, and configure the model for reanalysis project.

- **Q4FY18 -** Determine ensemble configuration for FV3-GEFS: Configure for optimum ensemble size (# members), resolution, physics, and coupling to Land and Wave models using NEMS/NUOPC mediator; conduct testing for quality assurance and computational efficiency.

- **Q4FY19 -** Produce ~20-year reanalysis datasets: Mainly ESRL/PSD activity. Determine configuration of the reanalysis system; develop observational database for reanalysis; prepare observational inputs; and produce reanalysis suitable for reforecasts and calibration.

- **Q1FY20 -** Produce ~30-year reforecast datasets for FV3-GEFS: Finalize ensemble configuration and produce reforecasts consistent with the reanalysis data; extend the reforecast length to 35 days.

- **Q1FY20** – Produce 2-3 year retrospective forecast for FV3-GEFS: Use the same configuration as real-time, and retrospective FV3GFS/EnKF analysis.

- **Q3FY20 -** Transition FV3-GEFS into operations: Conduct pre-implementation T&E; transition the system for operational implementation. Replace GEFSv11 and stop GEFSv10 (legacy run to support OWP) after we deliver 30-y reforecast???

# FV3-GEFS (v12) Gantt Chart (update – Jan. 2019)

## Implementation Plan for FV3-GEFS (FY2017-2020)

| FV3GEFS | FY17 | | | | FY18 | | | | FY19 | | | | FY20 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| FV3GEFS Reanalysis Development | | | Develop and test low resolution FV3GFS with FV3GDAS, configure it for reanalysis (ESRL) | | | | | | | | | | | | | |
| FV3GEFS Ensemble Configuration | | Configure FV3GFS ensemble resolution, members, physics, coupling to ocean and sea-ice, and extend forecasts to weeks 3&4 (EMC) | | | | | | | | | | | | | | |
| FV3GEFS Reanalysis Production | | | | | | | Produce ~20-year reanalysis datasets using FV3GFS/GDAS (ESRL) | | | | | | | | | |
| FV3GEFS Reforecasts | | | | | | | | Finalize FV3GEFS V12 configuration* & produce ~30-year reforecasts (extended to 35 days) | | | | | | | | |
| GEFSv12 Retrospectives | | | | | | | | | | | Produce 3-year retrospective forecasts using planned operational GEFSv12 configuration in support of field evaluation | | | | | |
| FV3GEFS V12 Evaluation | | | | | | | | | | | | Evaluate FV3GEFS V12 forecast performance out to weeks 3&4 | | | | |
| FV3GEFS V12 Implementation | | | | | | | | | | | | | | Transition FV3GEFS V12 into operations | | |

* Proposed changes for GEFS V12: 1) Produce FV3 based reanalysis using the same configuration as Q2FY19 FV3GFS (ESRL); 2) Reforecasts will be based on FV3GEFS configured with 2-Tier SST approach; and 3) FV3GEFS Reforecasts extended to 35 days to include weeks 3&4 guidance.

# FV3-GEFS reforecast configuration

- Model configurations
  - GEFSv12 (C384L64) - **as presented on Dec 20 2018**
    - **Highlights – hord=5; fixed GFDL MP (not the same as FV3-GFS)**

- Period of retrospective
  - 30 years (1989 – 2018)
    - 1989 – 1999 (11 years) CFS analysis
    - 2000 – 2018 (19 years) Hybrid FV3 GFS/EnKF reanalysis (ESRL/PSD)
    - **Caution - Initial analyses and perturbations of 30 years are in-consistent**

- Frequency and ensemble size
  - Configuration: 30 years, initialized at 00UTC for every day; runs 5 members out to 16 days, except for 11 members out to 35 days every 7 days.
    - **HPC resource – EMC has granted 750 nodes on DELL since November 2018**

- Output data
  - Format – GRIB2
  - Frequency and resolution
    - 3 hourly out to 10 days at 0.25 degree resolution
    - 6 hourly beyond 10 days at 0.5 degree resolution
  - Save all variables (**totally 590**) at above resolution on HPSS for 5-year
  - Save selected variables on disk for CPC, MDL and NWC (depends on HPCRAC approving?)
    - Currently, combined all three centers --- about **77 variables**
  - ESRL/PSD will convert GRIB format data to NetCDF for public access
  - Note: size of C384 file (590 variables) for one forecast lead-time at 0.25 degree = **380mb**

# Reforecast has started ……

- Dec. 21st 2018 – Start (initiated) reforecast in later afternoon
- Dec. 22nd 2018 – government shutdown
- Dec. 22nd 2018 – Jan. 27th 2019
  - Cron jobs was running continuously
  - Stats of progress: One year reforecast / per one week without stopping (7/24)
  - More than 5 years have been finished (1989-1993) during shutdown period
  - However, we fund a bug…. (Jan. 15 2019)
- Currently – it is running for 1998
- After finish 1999, will back to re-run 1989-1992, part of 1993

# Reforecast jobs setting (1989-1999)

- Final version to run reforecast
  - Job start at Dec. 21 2018
  - *On DELL development machine – 15+2 (nodes) for one member*
- Reforecast jobs have been set as 7 streams
  - Stream 1: Monday
  - Stream 2: Tuesday
  - Stream 3: Wednesday (11 members and 35 days)
  - Stream 4: Thursday
  - Stream 5: Friday
  - Stream 6: Saturday
  - Stream 7: Sunday
- Government shutdown
  - Last 35 days (Dec. 22 2018 – Jan. 25 2019)
  - Cron jobs were still running during shutdown
  - Machine maintenance (Jan. 22-25 2019) – not available
  - HPSS maintenance (a couple of times)

# Real-Time Monitoring System

## The Real-Time Monitor System for Reforecast

SUCCEEDED -- RUNNING -- DEAD or FAILED

| Year | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1990 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1991 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1992 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1993 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1994 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1995 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1996 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1997 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1998 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 1999 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2000 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2001 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2002 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2003 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2004 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2005 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| 2006 | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |

## 01/1995 - The Real-Time Monitor System for Reforecast

SUCCEEDED -- RUNNING -- DEAD or FAILED

### January

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

## 01/01/1995 - The Real-Time Monitor System for Reforecast

SUCCEEDED -- QUEUED -- RUNNING -- DEAD or FAILED

**r1a**

GEFS_ROCOTO: /gpfs/dell2/emc/verification/noscrub/emc.enspara/Bing.Fu/rfcst11/r1a/nwdev/rocoto

WORKDIR: /gpfs/dell3/nco/storage/fv3gefs/emc.enspara/Bing.Fu/o/r1a

HPSS_DIR: /NCEPDEV/emc-ensemble/5year/emc.enspara/fv3gefs/REFCST

KEEP_DIR: /gpfs/dell3/nco/storage/fv3gefs/REFCST

| CYCLE | TASK | JOBID | STATE | EXIT | TRIES | DURATION(m) | Start-Time | End-Time | DeltaT(m) |
|---|---|---|---|---|---|---|---|---|---|
| 199501010000 | init_fv3chgrs_p01 | 2470411 | SUCCEEDED | 0 | 1 | 1 | 2019-01-27 06:42:16 | 2019-01-27 06:43:34 | 1 |
| 199501010000 | init_fv3chgrs_p02 | 2470412 | SUCCEEDED | 0 | 1 | 1 | 2019-01-27 06:42:15 | 2019-01-27 06:43:34 | 1 |
| 199501010000 | init_fv3chgrs_p03 | 2470413 | SUCCEEDED | 0 | 1 | 1 | 2019-01-27 06:42:16 | 2019-01-27 06:43:34 | 1 |
| 199501010000 | init_fv3chgrs_p04 | 2470414 | SUCCEEDED | 0 | 1 | 1 | 2019-01-27 06:42:17 | 2019-01-27 06:43:35 | 1 |
| 199501010000 | init_fv3chgrs_c00 | 2470415 | SUCCEEDED | 0 | 1 | 1 | 2019-01-27 06:42:16 | 2019-01-27 06:43:35 | 1 |
| 199501010000 | forecast_high_p01 | 2470449 | SUCCEEDED | 0 | 1 | 113 | 2019-01-27 06:49:40 | 2019-01-27 08:42:50 | 113 |
| 199501010000 | forecast_high_p02 | 2470450 | SUCCEEDED | 0 | 1 | 112 | 2019-01-27 06:49:44 | 2019-01-27 08:41:51 | 112 |
| 199501010000 | forecast_high_p03 | 2470451 | SUCCEEDED | 0 | 1 | 113 | 2019-01-27 06:49:44 | 2019-01-27 08:43:04 | 113 |
| 199501010000 | forecast_high_p04 | 2470452 | SUCCEEDED | 0 | 1 | 112 | 2019-01-27 06:49:45 | 2019-01-27 08:42:01 | 112 |
| 199501010000 | forecast_high_c00 | 2470453 | SUCCEEDED | 0 | 1 | 96 | 2019-01-27 06:49:44 | 2019-01-27 08:25:54 | 96 |
| 199501010000 | post_high_p01 | 2470498 | SUCCEEDED | 0 | 1 | 109 | 2019-01-27 06:54:15 | 2019-01-27 08:43:17 | 109 |
| 199501010000 | post_high_p02 | 2470499 | SUCCEEDED | 0 | 1 | 108 | 2019-01-27 06:54:15 | 2019-01-27 08:42:20 | 108 |
| 199501010000 | post_high_p03 | 2470500 | SUCCEEDED | 0 | 1 | 109 | 2019-01-27 06:54:15 | 2019-01-27 08:43:26 | 109 |
| 199501010000 | post_high_p04 | 2470501 | SUCCEEDED | 0 | 1 | 108 | 2019-01-27 06:54:14 | 2019-01-27 08:42:21 | 108 |
| 199501010000 | post_high_c00 | 2470478 | SUCCEEDED | 0 | 1 | 95 | 2019-01-27 06:51:16 | 2019-01-27 08:26:20 | 95 |
| 199501010000 | prdgen_high_p01 | 2470540 | SUCCEEDED | 0 | 1 | 106 | 2019-01-27 06:57:17 | 2019-01-27 08:43:37 | 106 |
| 199501010000 | prdgen_high_p02 | 2470541 | SUCCEEDED | 0 | 1 | 105 | 2019-01-27 06:57:15 | 2019-01-27 08:42:40 | 105 |
| 199501010000 | prdgen_high_p03 | 2470542 | SUCCEEDED | 0 | 1 | 107 | 2019-01-27 06:57:17 | 2019-01-27 08:43:46 | 106 |
| 199501010000 | prdgen_high_p04 | 2470543 | SUCCEEDED | 0 | 1 | 105 | 2019-01-27 06:57:17 | 2019-01-27 08:42:41 | 105 |
| 199501010000 | prdgen_high_c00 | 2470502 | SUCCEEDED | 0 | 1 | 92 | 2019-01-27 06:54:15 | 2019-01-27 08:26:41 | 92 |
| | extractvars | 2471350 | SUCCEEDED | 0 | 1 | 7 | 2019-01-27 08:48:31 | 2019-01-27 08:55:53 | 7 |
| | enspost | 2471351 | SUCCEEDED | 0 | 1 | 3 | 2019-01-27 08:48:47 | 2019-01-27 08:51:33 | 3 |
| | post_track | 2471352 | SUCCEEDED | 0 | 1 | 0 | 2019-01-27 08:48:52 | 2019-01-27 08:48:59 | 0 |
| | keep_data | 2471462 | SUCCEEDED | 0 | 1 | 0 | 2019-01-27 08:58:05 | 2019-01-27 08:58:12 | 0 |
| | archive | 2471353 | SUCCEEDED | 0 | 1 | 30 | 2019-01-27 08:52:07 | 2019-01-27 09:22:03 | 30 |
| | cleanup | 2471728 | SUCCEEDED | 0 | 1 | 0 | 2019-01-27 09:24:16 | 2019-01-27 09:24:40 | 0 |

**Checking files in KEEP_DIR**

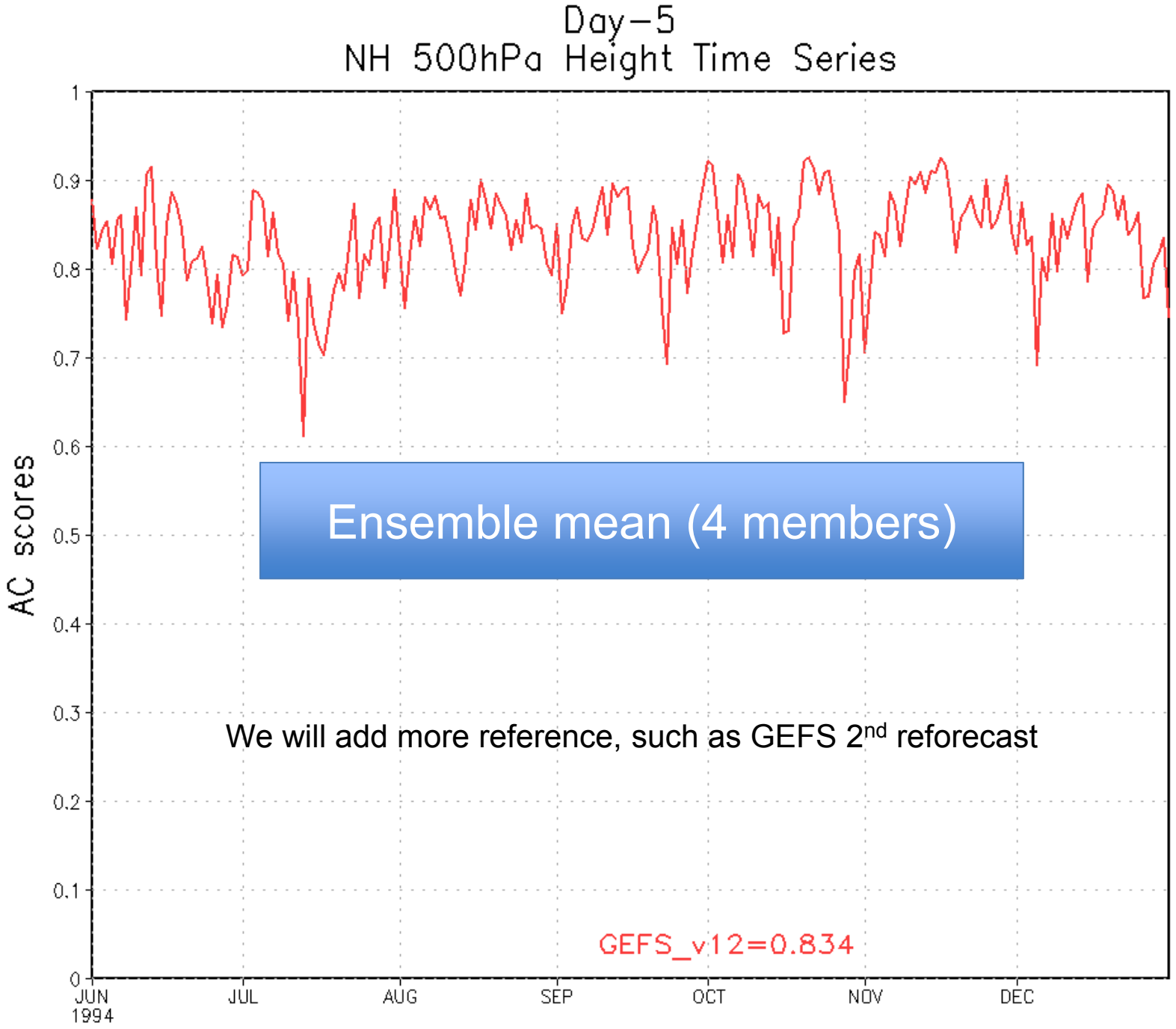
(-5 means this folder does not exist!)

| Folder Name | Number of Files in KEEP_DIR |
|---|---|
| f3d | 515/525 |
| f6d | 515/525 |
| enstat | 160/160 |
| tctrack | 0/5 |
| logs | 26 |

There are 4 files in HPSS

# Missing data for 1989-1999

- Initial Analysis
  - 1990121300 (Gary has)
  - 1996071300 (Gary has)
  - 1997010100 (Gary has)
- Initial Perturbations
  - **1990121300 need to make up (later)**
  - **1996071300 need to make up (later)**
  - 1997010100 (Gary has)
- SST for 2-tier SST
  - No CFSRR SST forecast for November 1989
    - Have confirmed (**really missing Nov. 1 – 7 1989**)
  - No CFSRR SST forecast for Feb. 5-9 1995 (make up already)


Day-5
NH 500hPa Height Time Series
AC scores
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
JUN
1994
JUL
AUG
SEP
OCT
NOV
DEC
Ensemble mean (4 members)
We will add more reference, such as GEFS 2nd reforecast
GEFS_v12=0.834
YAN LUO, NOAA/NWS/NCEP/EMC

# Update of Reforecast (2000-2018) Initializations

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Environmental Modeling Center

NCEP/NWS/NOAA

Acknowledgments:

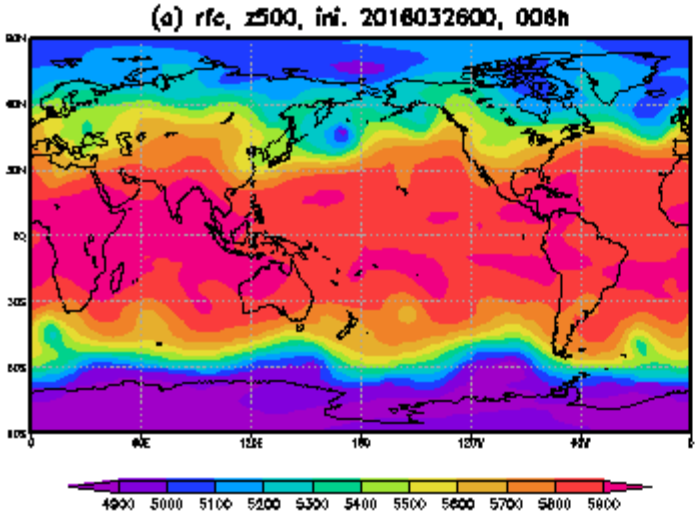
Ensemble staffs, PSD and CPC staffs

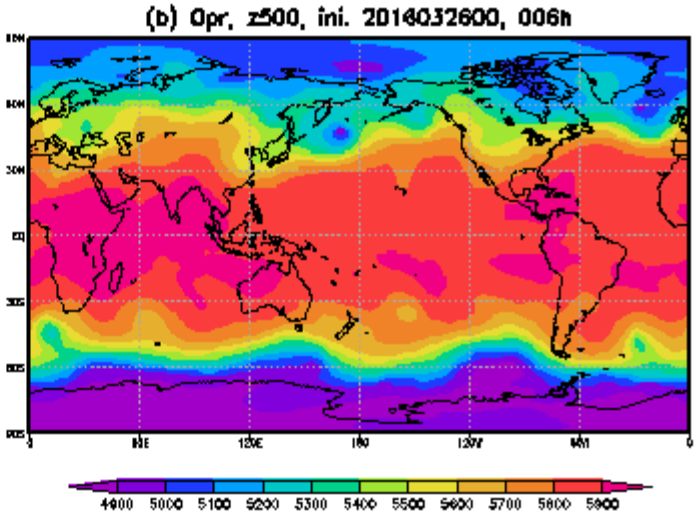
Update: 2/14/2019

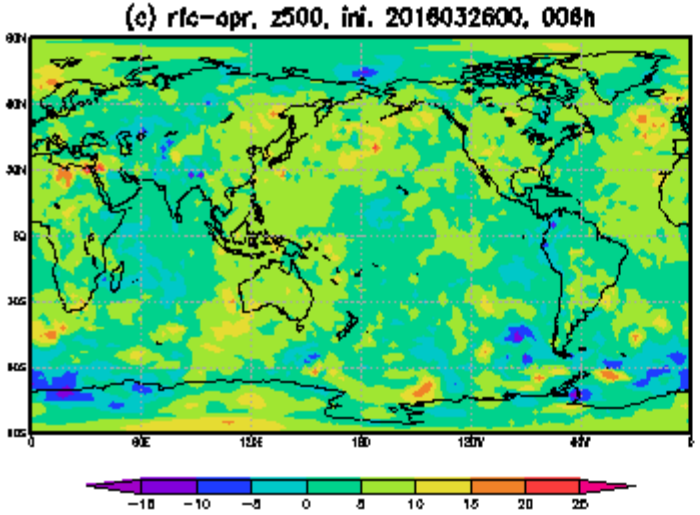
# Issues we are working on

- Start from end of IAU window (00UTC+3)
  - This is not a easy job!!!
  - Build up/confirm "restart" (f03) capability
    - To have valid accumulation/average fields from f03
    - Restart files from PSD may be slightly different from EMC?
    - Later on, PSD sends updated restart files (bug fixed?)
      - But not final?
      - EMC does not test yet.
    - **We have confirmed GEFS restart capability (done for EMC's retrospective)**
  - The outputs start from f09 have been confirmed
  - The output of f03-f06 is saved for additional process to form f06 output (6hr accumulation/average)
- To form 1st 6 hours accumulation/average (still challenge!)
  - Start from "nemsio" (00UTC+3)
    - It should be "f09" forecast based on IAU replay
    - It is lower resolution (C128) and **ensemble control only**
    - "nemsio" file assumes to present 3 hours (f06-f09) accumulation/average
    - PSD's files have mis-matched message – need extra works, and validate.
  - Issues:
    - There is no 1st 3-hr accumulation for all ensemble perturbed forecasts.
    - Lower analysis resolution – upscale from C128 to C384 (reduced quality?)
    - Possible to miss some accumulation/average variables (?)

# Example for IAU started forecast



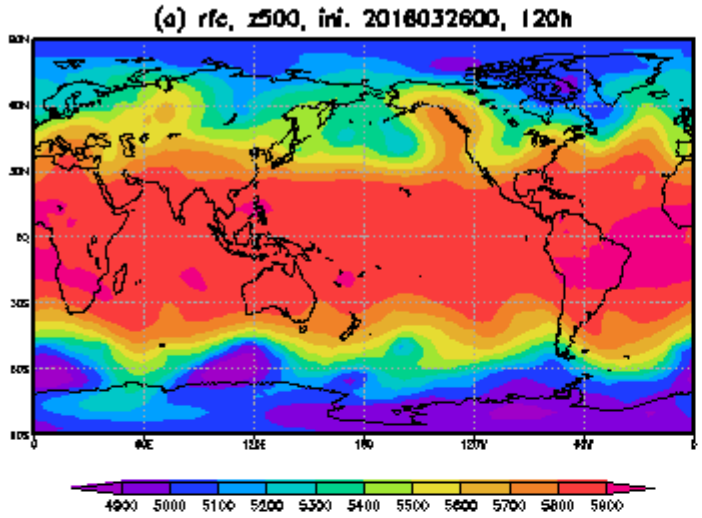



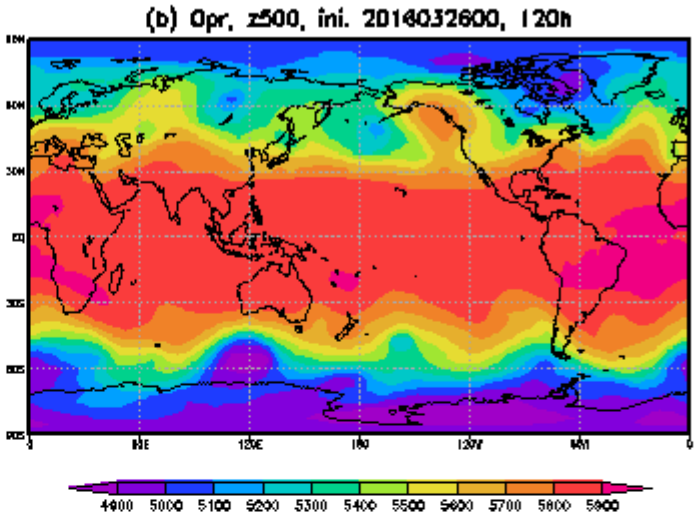

**Initial time: 2016032600**
**F06 - ensemble control only**

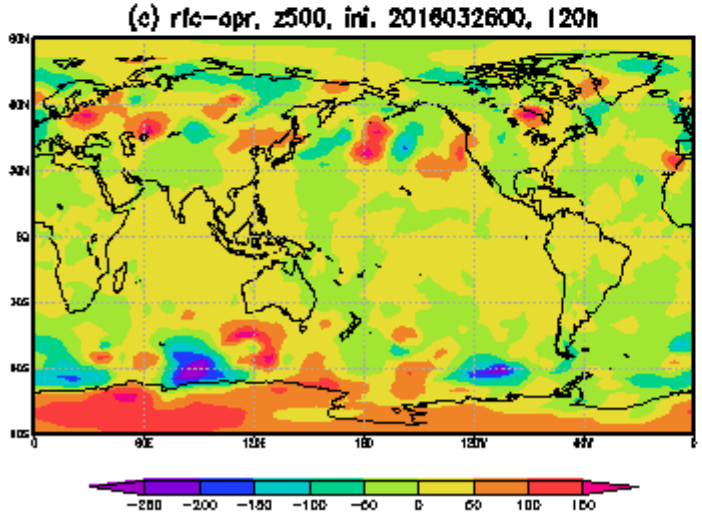
**500hPa height**

**Top left – Reforecast**
**Top right – Operation**
**Bottom - difference**

# Example for IAU started forecast




**Initial time: 2016032600**
**F120 - ensemble control only**

**500hPa height**

**Top left – Reforecast**
**Top right – Operation**
**Bottom - difference**

**Will run at least one week to confirm our restart process (after PSD's IAU restart files finalized**

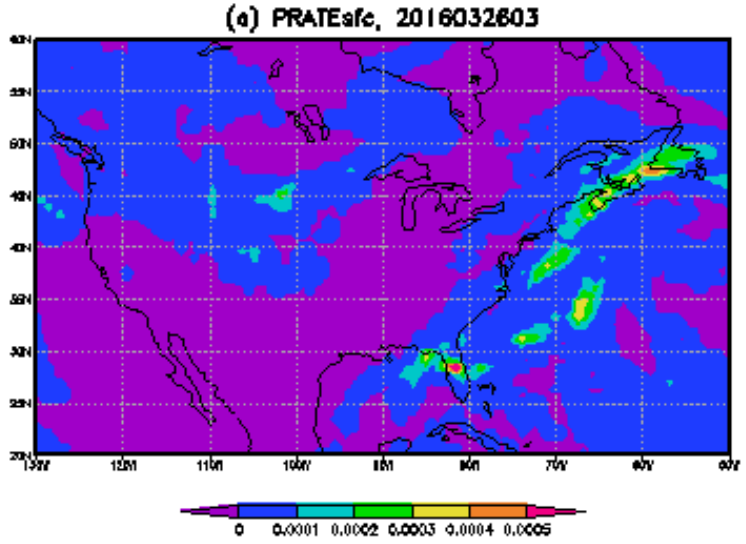
# Confirmation for 1st 3hr/6hr accumulation/average

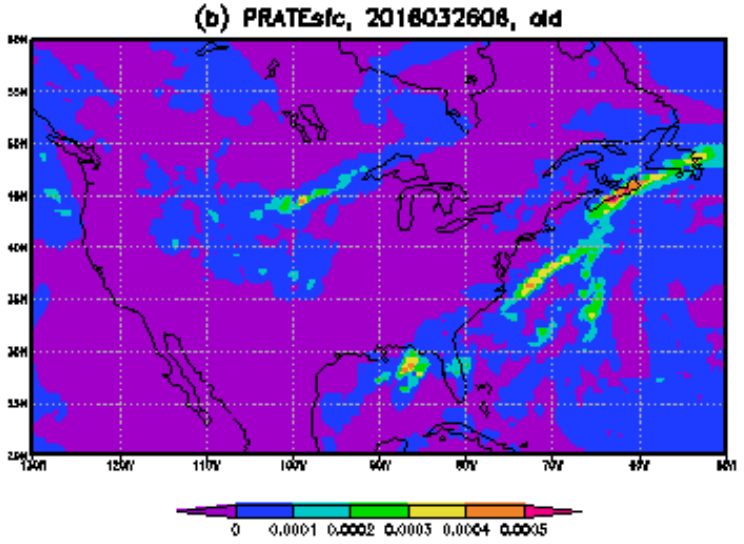
- We have saved all 590 (forecast) variables totally
  - For 1989-1999 (11 years) – reference
    - F00 (2d variables) – 217
    - F03/F06 (2d variables) – 259
    - F00 (3d - 329) and all forecasts (3d variables) - 331
  - For 2000 – 2018 – from IAU process
    - F00 (2d variables) – 212 (??)
    - F03/F06 (2d variables) – still work on!
    - F00 and all forecasts (3d variables) - 295
- There are no perturbed forecast for 1st 3hr and 6hr for:
  - Accumulation/Average/Maximum/Minimum
  - If you see any of above variables, they are identical to ensemble control (just copy over) for f00-f03 (3hrs)

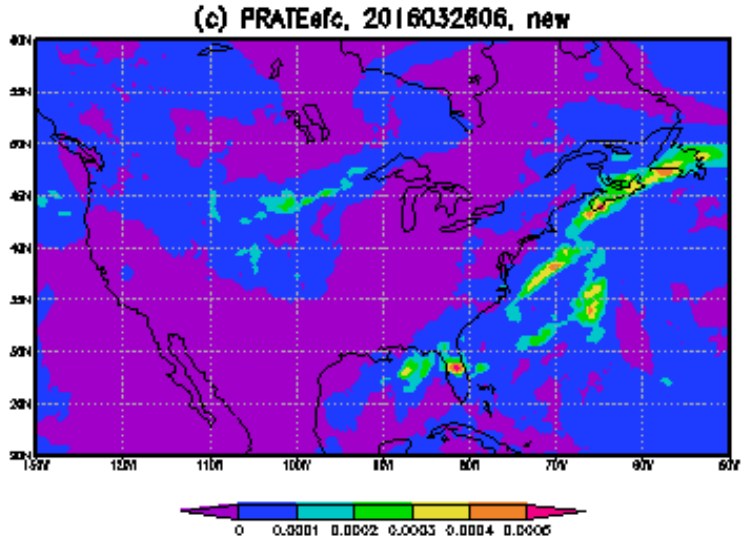
# Confirmation for 1st 3hr/6hr accumulation/average

- Saved files for stakeholders (CPC/OWP/MDL)
  - For 1989-1999 (11 years) – reference
    - F00 (2d variables) – 13
    - F03/F06 (2d variables) – 22
    - F00 and all forecasts (3d variables) - 55
  - For 2000 – 2018 – from IAU process
    - F00 (2d variables) – 13 (11 before runs UPP)
    - F03/F06 (2d variables) - 16
    - F00 and all forecasts (3d variables) - 55

# Example of combined 1st 6 hours precipitation rate




Top left – 1st 3 hours from restart file (PSD)

Top right – 1st 3 hours from IAU started integration (EMC)

Bottom left – combine two 3 hours, form 6 hours PRATE

**Work is on progress!!!**

# Questions to PSD

- Analysis (pass to us) – is it final?
- IAU start files (+3 hrs) – when is it finalized?
  - We are still working on first 6 hours files
    - PSD (restart) + EMC (f03 from IAU)
- Confirmation is needed for SST
  - First 4 streams – no NSST, use OI SST
  - Last stream – NSST
  - We need to generate 2-tire SSTs ahead in order to start reforecast for 2000-2018

# Extra Slides!!!

# Upper Air Variables (selected #1) – 0.5degree

| | U | V | T | RH | Height | VV | O3MR |
|---|---|---|---|---|---|---|---|
| 10hPa | C,E | C,E | C,E | | C,E | | C |
| 50hPa | C,E | C,E | C,E | | E | | C |
| 100hPa | E | E | E | | E | | C |
| 200hPa | C,M,E | C,M,E | C,M,E | C,M | C,M,E | | |
| 250hPa | M,E | M,E | M,E | M | M,E | | |
| 500hPa | C,M,E | C,M,E | C,M,E | C,M | C,M,E | | |
| 700hPa | C,M,E | C,M,E | C,M,E | C,M | C,M,E | | |
| 850hPa | C,M,E | C,M,E | C,M,E | C,M | M,E | E | |
| 925hPa | M,E | M,E | M,E | M | M,E | | |
| 1000hPa | M,E | M,E | M,E | M | M,E | | |
| 0.996 (hybrid) | C | C | C | C | | | |

Total: 55 variables to support CPC, MDL and EMC (NAEFS), but not for MDL's BMOS

C – CPC; M – MDL; N – NWC; E - EMC (the same for next slide)

# Surface and other variables (Selected #2) – 0.25degree

| Variables | Requested | total | Notes |
|---|---|---|---|
| PMSL, Surface Pressure | C,M,N,E | 2 | |
| T2m, Tmax, Tmin | C,M,N,E | 3 | Tmax and Tmin for 6-hr |
| 2m RH | M,N,E | 1 | Could convert to Td or q |
| U10m, V10m | C,N,E | 2 | |
| QPF | C,M,N,E | 1 | 3-hr accumulation |
| Precipitation Types | C,M,E | 4 | Rain, Freezing rain, Ice Pellets, Snow |
| PWAT | M | 1 | |
| CAPE | C,M,E | 1 | |
| Helicity at 0-3000m | C | 1 | |
| CIN | C,M,E | 1 | |
| Total sky cover (TCDC) | M,E | 1 | |
| Snow water equivalent | C | 1 | |
| OLR | C,E | 1 | |
| SDLR | N | 1 | |
| SDSR | N | 1 | |

**Total 22 variables, the BMOS variables are not counted in this list**

# **Sample data for GEFSv12 reforecast** – contributed by Hong Guan

All (CPC, MDL and NWC/OWP);

As we promised before, we will send out a sample data for selected variables to allow all our stakeholders to test/valid. Dr. Hong Guan is our contact (cced), please let us know if there is any question. We'd like to have your confirmation before next reanalysis/reforecast meeting (current schedule - July 17 2018)

We have saved 74 variables (see attached slides - sample for you to verify):
1. Five ensemble members include ensemble control
2. 0.25 degree for 0-10 days every 3 hours
3. 0.5 degree for 10-35 days every 6 hours.
4. We have 2 QPF records in this sample, but will delete duplicate one later.

Notes for CPC: we will add on O3MR for 10hPa, 50hPa and 100hPa later
Notes for MDL: sample has excluded your BMOS request
Notes for NWC/OWP: you need to have WCOSS access soon, ftp sample here for validation/demonstration only. Currently, EMC does not have ftp disk storage for public access, except for future coordination/discussion with ESRL/PSD

**To access sample data through website:**
0.25 degree data: ftp://ftp.emc.ncep.noaa.gov/gc_wmb/wd20hg/FV3GEFS_rfcst/2017060100/pgrb2ap25
0.5 degree data: ftp://ftp.emc.ncep.noaa.gov/gc_wmb/wd20hg/FV3GEFS_rfcst/2017060100/pgrb2ap50

**or anonymous ftp**:
ftp ftp.emc.ncep.noaa.gov ID: anonymous PW: your email
cd gc_wmb/wd20hg/FV3GEFS_rfcst/2017060100 (you will see two subsets)

**To access sample data from WCOSS directly (luna machine):**
0.25 degree: /gpfs/hps3/emc/ensemble/noscrub/emc.enspara/FV3GEFS_rfcst/2017060100/pgrb2ap25
0.5 degree: /gpfs/hps3/emc/ensemble/noscrub/emc.enspara/FV3GEFS_rfcst/2017060100/pgrb2ap50

**See an inventory of one forecast (lead), and one member:**
http://www.emc.ncep.noaa.gov/gmb/wd20hg/FV3_anl/rfcst_output_0p25
http://www.emc.ncep.noaa.gov/gmb/wd20hg/FV3_anl/rfcst_output_0p50

# Receives confirmation of sample output data

- MDL – John Wagner for EKDMOS
  - Hi Yuejian, I believe the sample data will be good for EKDMOS. I have not been able to test everything as the control member is encoded as a low-res control (even though its 0.25 degrees) and my code is expecting the high-res control member. I will need to make some changes to get this data into TDLPACK, which I haven't had time to because of the WCOSS outages. I was able to convert the other members to TDLPACK without error. I see no reason not to proceed with these settings. Thanks. - John
- CPC –
  - Face to face meeting in August 2nd between CPC (Arun Kumar, Matthew Rosencrans, Craig Long, Dan Collins, Hui Wang) and EMC (Yuejian Zhu and Hong Guan)
  - CPC has confirmed save samples, EMC agreed to add 12 new isentropical variables for CPC (still waiting for CPC's validation)
- OWP – Mark Fresch (future POC: Dr. Kaksu Lee)
  - Yuejian, The sample GEFSv12 reforecast is acceptable to OWP. Thanks, especially for Hong's help. – MarkF
- MDL and CPC are agreed to save selected (#1 group) pressure level variables at 0.5degree all the way to 10 days without change frequency – July 31st 2018